

Additional Requirements for Dip Tanks Using Flammable or Combustible Liquids

WAC 296-835-120

Summary

IMPORTANT:

This section applies to:

- Flammable and combustible liquids (flashpoint below 200°F)
- Liquids that have a flashpoint of 200°F (93.3°C) or higher if you:
 - Heat the liquid
 - Dip a heated object in the tank



Reference:

Store flammable and combustible liquids as required by Flammable and Combustible Liquids, WAC 296-24-330, in the General Safety and Health Standards.

Flammable or
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Additional Requirements for Dip Tanks Using Flammable or Combustible Liquids

WAC 296-835-120

Summary

YOUR RESPONSIBILITY:

Safeguard employees working with dip tanks containing flammable or combustible liquids

You must

CONSTRUCTION

Include additional safeguards when constructing dip tanks

WAC 296-835-12005 120-4

Provide overflow pipes

WAC 296-835-12010 120-4

Provide bottom drains

WAC 296-835-12015 120-6

FIRE PROTECTION

Provide fire protection in the vapor area

WAC 296-835-12020 120-7

Provide additional fire protection for large dip tanks

WAC 296-835-12025 120-8

-Continued-



Additional Requirements for Dip Tanks Using Flammable or Combustible Liquids

WAC 296-835-120

Summary

(Continued)

ELECTRICAL WIRING AND EQUIPMENT AND SOURCES OF IGNITION

Prevent static electricity sparks or arcs when adding liquids to a dip tank
WAC 296-835-12035 120-10

Control ignition sources in the vapor area and adjacent area
WAC 296-835-12040 120-10

Provide safe wiring and electrical equipment where the liquid can drip or splash
WAC 296-835-12045 120-11

HOUSEKEEPING

Keep the area around dip tanks clear of combustible material and properly dispose of waste
WAC 296-835-12050 120-12

HEATING LIQUID

Make sure heating the liquid in your dip tanks doesn't cause a fire
WAC 296-835-12055 120-13

HEAT DRYING

Make sure a heating system used for drying objects doesn't cause a fire
WAC 296-835-12060 120-14

CONVEYORS

Make sure the conveyor system for dip tanks is safe
WAC 296-835-12065 120-15

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Additional Requirements for Dip Tanks Using Flammable or Combustible Liquids

WAC 296-835-120

Rule

CONSTRUCTION

WAC 296-835-12005

Include additional safeguards when constructing dip tanks

You must

- (1) Make sure the dip tank, drain boards (if provided), and supports, are made of noncombustible material.
- (2) Make sure piping connections on drains and overflow pipes allow easy access to the inside of the pipe for inspection and cleaning.

WAC 296-835-12010

Provide overflow pipes

You must

- Provide an overflow pipe on dip tanks that:
 - Hold more than 150 gallons of liquid
- OR**
- Have more than 10 square feet of liquid surface area
- Make sure the overflow pipe is:
 - Properly trapped
 - Able to prevent the dip tank from overflowing
 - 3 inches or more (7.6 cm) in diameter
 - Discharged to a safe location

- Continued -



Additional Requirements for Dip Tanks Using Flammable or Combustible Liquids

WAC 296-835-120

Rule

WAC 296-835-12010 (Continued)



Note:

Discharged to a safe location could be a:

- Safe location outside the building

OR

- Closed, properly vented salvage tank or tanks that can hold more than the dip tank.

You must

- Make sure the bottom of the overflow pipe is at least 6 inches (15.2 cm) below the top of the tank.



Note:

The overflow pipe should be large enough to remove water applied to the liquid surface of the dip tank from automatic sprinklers or other sources in the event of fire. Smaller dip tanks should be equipped with overflow pipes, if practical.

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WAC 296-835-120

Rule

WAC 296-835-12015

Provide bottom drains



Exemption:

A bottom drain isn't required if:

- The viscosity of the liquid makes it impractical to empty the tank by gravity or pumping

OR

- The dip tank has an automatic closing cover that meets the requirements of WAC 296-835-12030.

You must

- Provide a bottom drain on all dip tanks that hold more than 500 gallons of liquid.
- Make sure the bottom drain:
 - Is properly trapped
 - Will empty the dip tank during a fire
 - Has pipes large enough to empty the tank within 5 minutes
 - Uses automatic pumps if gravity draining isn't practical
 - Is capable of both manual and automatic operation
 - Discharges to a safe location



Note:

Discharges to a safe location could be a:

- Safe location outside the building

OR

- Closed, properly vented salvage tank or tanks that can hold more than the dip tank.

-Continued-



Additional Requirements for Dip Tanks Using Flammable or Combustible Liquids

WAC 296-835-120

Rule

WAC 296-835-12015 (Continued)

You must

- Make sure manual operation of the bottom drain is performed from a safe and easily accessible location.

FIRE PROTECTION

WAC 296-835-12020

Provide fire protection in the vapor area

You must

- Provide a manual fire extinguisher near the tank that is suitable for putting out flammable and combustible liquid fires.

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Additional Requirements for Dip Tanks Using Flammable or Combustible Liquids

WAC 296-835-120

Rule

WAC 296-835-12025

Provide additional fire protection for large dip tanks

You must

- Provide at least one automatic fire extinguishing system or an automatic dip tank cover if the tank:
 - Holds 150 gallons or more of liquid
- OR**
- Has 4 square feet or more of liquid surface area.
- Make sure automatic fire extinguishing systems or automatic dip tank covers meet the requirements of Table 1.



Exemption:

An automatic fire extinguishing system or an automatic dip tank cover isn't required for a hardening or tempering tank that:

- Holds less than 500 gallons

OR

- Has less than 25 square feet of liquid surface area.

-Continued-



Additional Requirements for Dip Tanks Using Flammable or Combustible Liquids

WAC 296-835-120

Rule

WAC 296-835-12025 (Continued)

Table 1: Automatic Fire Protection System Requirements

IF YOU PROVIDE	THEN YOU MUST
An automatic fire extinguishing system	<ul style="list-style-type: none">• Use extinguishing materials suitable for a fire fueled by the liquid in the tank• Make sure the system protects the:<ul style="list-style-type: none">- Tanks- Drain boards- Stock over drain boards.
A dip tank cover	<ul style="list-style-type: none">• Make sure the cover is:<ul style="list-style-type: none">- Closed by approved automatic devices in the event of fire- Able to be manually activated- Kept closed when the tank isn't being used <p>Made of noncombustible material or metal-clad material with locked metal joints.</p>



Reference:

- Automatic fire extinguishing systems have specific requirements.

See:

- WAC 296-24-622 for automatic dry chemical extinguishing system requirements
- WAC 296-24-623 for automatic carbon dioxide extinguishing system requirements
- WAC 296-24-627 for automatic water spray extinguishing system and automatic foam extinguishing system requirements.

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WAC 296-835-120

Rule

ELECTRICAL WIRING AND EQUIPMENT AND SOURCES OF IGNITION

WAC 296-835-12035

Prevent static electricity sparks or arcs when adding liquids to a dip tank

You must

- Make sure any portable container used to add liquid to the tank is:
 - Electrically bonded to the dip tank
 - Positively grounded

WAC 296-835-12040

Control ignition sources

You must

- (1) Make sure the vapor areas and *adjacent areas* don't have any:
 - Open flames
 - Spark producing devices
 - Heated surfaces hot enough to ignite vapors
- (2) Use explosion-proof wiring and equipment in the vapor area.

-Continued-



Additional Requirements for Dip Tanks Using Flammable or Combustible Liquids

WAC 296-835-120

Rule

WAC 296-835-12040 (Continued)



Reference:

Electrical wiring and equipment has to meet the requirements of the applicable hazardous (classified) location. See Hazardous (classified) locations, WAC 296-24-95613. Electrostatic equipment has specific electrical requirements. See WAC 296-835-13010.

You must

(3) Prohibit smoking in any vapor area:

- Post an easily seen "NO SMOKING" sign near each dip tank.

WAC 296-835-12045

Provide safe electrical wiring and equipment where the liquid can drip or splash

You must

- Make sure all electrical wiring and equipment in the vapor area is approved for areas that have:
 - Deposits of easily ignited residue
 - Explosive vapor



Exemption:

This doesn't apply to wiring that is:

- In rigid conduit, threaded boxes or fittings
- Has no taps, splices, or terminal connections.

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Additional Requirements for Dip Tanks Using Flammable or Combustible Liquids

WAC 296-835-120

Rule

HOUSEKEEPING

WAC 296-835-12050

Keep the area around dip tanks clear of combustible material and properly dispose of waste

You must

- (1) Make sure the area surrounding dip tanks is:
 - Completely free of combustible debris
 - As free of combustible stock as possible.
- (2) Provide approved metal waste cans that are:
 - Used for immediate disposal of rags and other material contaminated with liquids from dipping or coating operations
 - Emptied and the contents properly disposed of at the end of each shift.



Additional Requirements for Dip Tanks Using Flammable or Combustible Liquids

WAC 296-835-120

Rule

HEATING LIQUID

WAC 296-835-12055

Make sure heating the liquid in your dip tanks doesn't cause a fire

You must

- Keep the temperature of the liquid in the dip tank:
 - Below the liquid's boiling point
 - At least 100°F below the liquid's *autoignition temperature*.

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WAC 296-835-120

Rule

HEAT DRYING

WAC 296-835-12060

Make sure a heating system used for drying objects doesn't cause a fire

You must

- Make sure the heating system used in a drying operation that could cause ignition:
 - Has adequate mechanical ventilation that operates before and during the drying operation
 - Shuts down automatically if a ventilating fan fails to maintain adequate ventilation
 - Is installed as required by NFPA 86-1999, Standard for Ovens and Furnaces.



Note:

Some, or all, of the consensus standards (such as ANSI and NFPA) may have been revised. If you comply with a later version of a consensus standard, you will be considered to have complied with any previous version of the same consensus standard.



Additional Requirements for Dip Tanks Using Flammable or Combustible Liquids

WAC 296-835-120

Rule

CONVEYORS

WAC 296-835-12065

Make sure conveyor systems are safe

You must

- Make sure the conveyor system shuts down automatically if:
 - The ventilation system fails to maintain adequate ventilation
- OR**
- There is a fire.

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Dipping and Coating Operations (Dip Tanks)

Chapter 296-835 WAC

Notes